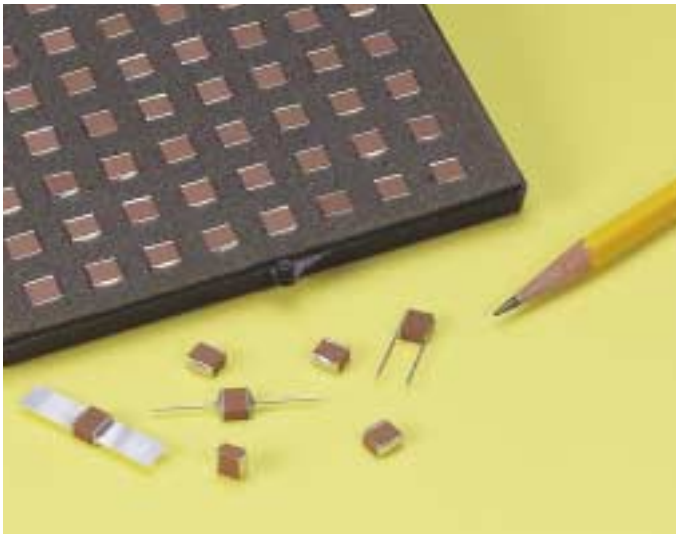
ATC 900 C Series X7R Ceramic RF Power Multilayer Capacitors



- **Case C Size (.250" x .250")**
- **Capacitance Range 0.01 µF to 1 µF**
- **Low ESR/ESL**
- **Mid-K**
- **Rugged Construction**
- **High Reliability**
- **Available with Encapsulation Option***

ATC, the industry leader, offers new improved ESR/ESL performance for the 900 C Series RF Capacitors. This Series exhibits superior volumetric efficiency, providing high levels of capacitance for HF/ RF power applications. Ceramic construction provides a rugged, hermetic package.

ATC offers an encapsulation option for applications requiring extended protection against arc-over and corona.

Typical functional applications: Bypass, Coupling and DC Blocking.

Typical circuit applications: HF/RF Power Amplifiers, Switching Power Supplies, High Frequency SMPS Filters and Medical Equipment.

*For leaded styles only.

ENVIRONMENTAL TESTS

ATC 900 C Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

THERMAL SHOCK:
MIL-STD-202, Method 107, Condition A.

MOISTURE RESISTANCE:
MIL-STD-202, Method 106.

LOW VOLTAGE HUMIDITY:
MIL-STD-202, Method 103, Condition A, with 1.5 Volts DC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min.

LIFE TEST:
MIL-STD-202, Method 108, for 2000 hours, at 125°C.
200% WVDC applied.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

DISSIPATION FACTOR (DF): 2.5% max. at 1 KHz.

TEMPERATURE COEFFICIENT OF CAPACITANCE (TCC):
Less than ±15% (-55°C to +125°C)

INSULATION RESISTANCE (IR):
0.01 MFd to 1 MFd
1000 megohms min. @ +25°C at rated WVDC.
100 megohms min. @ +125°C at rated WVDC.

WORKING VOLTAGE (WVDC):
See Capacitance Values Table, page 2.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):
Case C: 250% of rated WVDC for 5 secs.

AGING EFFECTS: 3% maximum per decade hour.

PIEZOELECTRIC EFFECTS: Negligible

DIELECTRIC ABSORPTION: 2% typical

OPERATING TEMPERATURE RANGE:
-55°C to +125°C (No derating of working voltage).

TERMINATION STYLES:
Available in various surface mount and leaded styles.
See Mechanical Configurations, page 3.

TERMINAL STRENGTH: Terminations for chips and pellets withstand a pull of 10 lbs. min., 15 lbs. typical, for 5 seconds in direction perpendicular to the termina-tion surface of the capacitor. Test per MIL-STD-202, method 211.

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ATC 900 C Capacitance Values

CAP. CODE	CAP. (MFd)	TOL.	RATED WVDC
103	.010	K, M, N	300
153	.015		300
223	.022		300
333	.033		250
473	.047		250
683	.068		250
104	.10		200
154	.15		200
224	.22		200
334	.33		150
474	.47		150
684	.68		150
824	.82		100
105	1.0		100

VRMS = 0.707 X WVDC

- **SPECIAL VALUES, TOLERANCES, HIGHER WVDC AND MATCHING AVAILABLE.**
- **ENCAPSULATION OPTION AVAILABLE. PLEASE CONSULT FACTORY.**

CAPACITANCE TOLERANCE

Code	K	M	N
Tol.	±10%	±20%	±30%

ATC PART NUMBER CODE

ATC900 C 10 5 M W 100 X C

- Series
- Case Size
- Capacitance Code: First 2 significant digits for capacitance.
- Indicates number of zeros following digits of capacitance in picofarads except for decimal values.
- Capacitance Tolerance
- Termination Code
- WVDC
- Laser Marking
- Packaging
  - C - ATC Waffle-pack (Standard)
  - B - Bulk Packaging (packed in plastic bags)
  - I - Special Packaging. Consult Factory

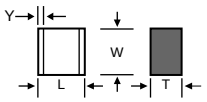
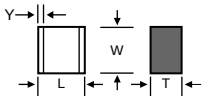
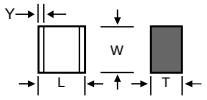
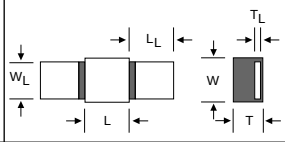
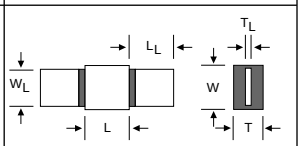
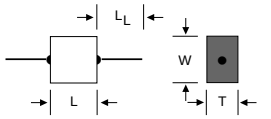
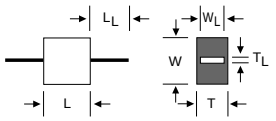
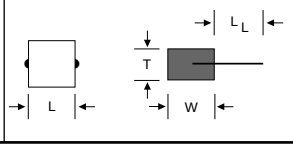
The above part number refers to a 900 C Series (case size C) 1.0 MFd capacitor, M tolerance (±20%), 100 WVDC, with W termination (Tin/Lead, Solder Plated over Nickel Barrier), laser marking and Waffle-packaging.

ATC accepts orders for our parts using designations ***with*** or ***without*** the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

For additional information and catalogs contact your ATC representative or call direct at (631) 622-4700.

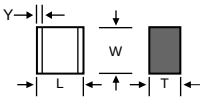
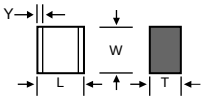
Consult factory for additional performance data.

ATC 900 C Capacitors: Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS Inches (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS	
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS
900C	W	C Solder Plate		.230 +.020 -.010 (5.84 +0.51 -0.25)	.250 ±.015 (6.35 ±0.38)	.145 (3.68) max. for capacitance values < 0.82 MFd; .165 (4.19) max. for capacitance values ≥ 0.82 MFd.	.040 (1.02) max.	Tin/Lead, Solder Plated over Nickel Barrier Termination
900C	P	C Pellet		.230 +.025 -.010 (5.84 +0.64 -0.25)				Heavy Tin/Lead Coated, over Nickel Barrier Termination
900C	T	C Lead-Free Solderable Nickel Barrier		.230 +.020 -.010 (5.84 +0.51 -0.25)				***Lead-Free and RoHS Compliant*** Tin Plated over Nickel Barrier Termination
900C	MS	C Microstrip		.245 ±.025 (6.22 ±0.64)			N/A	High Purity Silver Leads L_L = .500 (12.7) min. W_L = .240 ±.005 (6.10 ±.127) T_L = .004 ±.001 (.102 ±.025) Leads are Attached with High Temperature Solder.
900C	AR	C Axial Ribbon						
900C	AW	C Axial Wire						Silver-plated Copper Leads L_L = 1.0 (25.4) min. Dia. = .032 ±.002 (0.81 ±0.05)
900C	VA	C Veritical Axial Ribbon						Silver Leads L_L = .500 (12.7) min. W_L = * See below T_L = .004 ±.001 (.102 ±.025)
900C	RW	C Radial Wire						Silver-plated Copper Leads L_L = 1.0 (25.4) min. Dia. = .032 ±.002 (0.81 ±0.05)

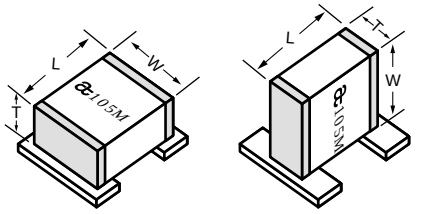
Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.
**WL = .110 (2.79) for capacitance values < 0.82 MFd.; WL = .130 (3.30) for capacitance values ≥ 0.82 MFd.

ATC 900 C Capacitors: Non-Magnetic Mechanical Configurations

ATC SERIES & CASE SIZE	ATC TERM. CODE	CASE SIZE & TYPE	OUTLINES W/T IS A TERMINATION SURFACE	BODY DIMENSIONS Inches (mm)			LEAD AND TERMINATION DIMENSIONS AND MATERIALS	
				LENGTH (L)	WIDTH (W)	THICKNESS (T)	OVERLAP (Y)	MATERIALS
900C	WN	C Non-Mag Solder Plate		.230 +.025 -.010 (5.84 +0.64 -0.25)	.250 ±.015 (6.35 ±0.38)	.145 (3.68) max. < 0.82 MFd .165 (4.19) max. ≥ 0.82 MFd	.040 (1.02) max.	Tin/Lead, Solder Plated over Non-Magnetic Barrier Termination
900C	TN	C Non-Mag Lead-Free Solderable Barrier		.230 +.025 -.010 (5.84 +0.64 -0.25)				***Lead-Free and RoHS Compliant*** Tin Plated over Non-Magnetic Barrier Termination

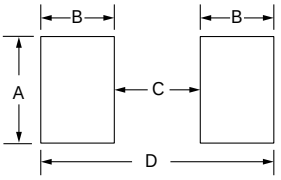
Custom lead styles and lengths are available; consult factory. All leads are high purity silver attached with high temperature solder and are **RoHS** compliant.

Suggested Mounting Pad Dimensions



Horizontal Electrode Orientation

Vertical Electrode Orientation



Case C Vertical Mount

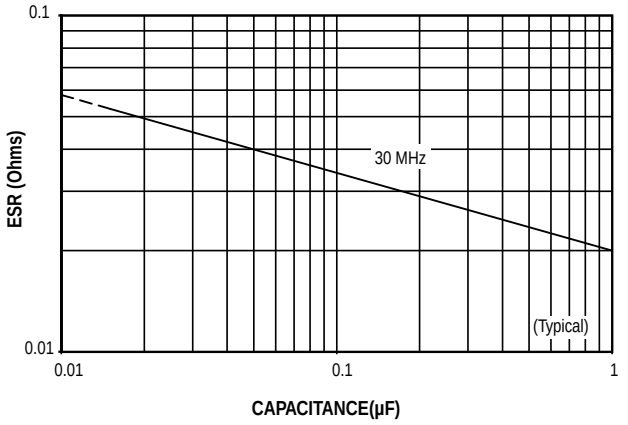
Cap Value	Pad Size	A Min.	B Min.	C Min.	D Min.
> .82 uF	Normal	.150	.050	.200	.300
	High Density	.130	.030	.200	.260
≥ .82 uF	Normal	.185	.050	.200	.300
	High Density	.165	.030	.200	.260

Horizontal Mount

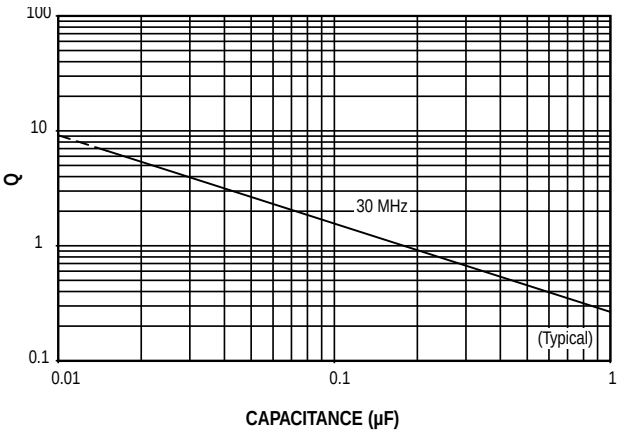
All values	Normal	.280	.050	.200	.300
	High Density	.260	.030	.200	.260

ATC 900 C Performance Data

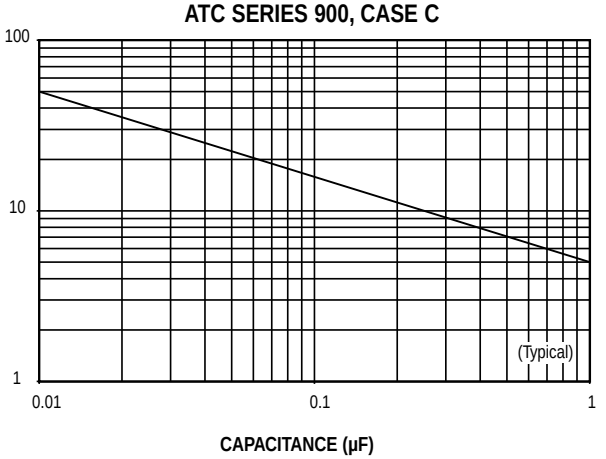
ESR VS. CAPACITANCE
ATC SERIES 900, CASE C



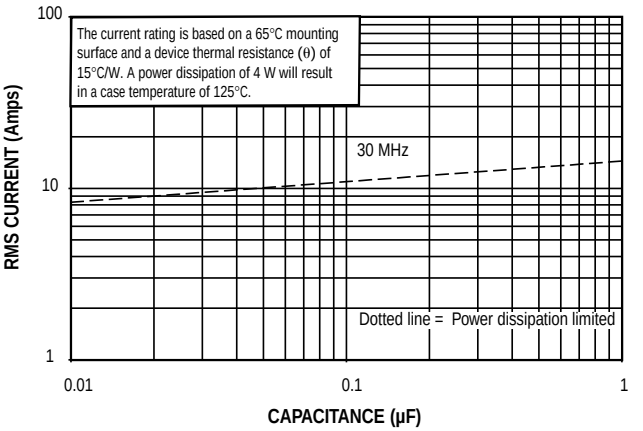
Q VS. CAPACITANCE
ATC SERIES 900, CASE C



SERIES RESONANCE VS. CAPACITANCE
ATC SERIES 900, CASE C



CURRENT RATING VS. CAPACITANCE
ATC SERIES 900, CASE C



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